CLAIMS

We claim

1. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:

a) an amino acid sequence selected from the group consisting of SEQ ID NO:2 and SEQ ID NO:4;

b) a variant of an amino acid sequence selected from the group consisting of SEQ ID NO:2 and SEQ ID NO:4, in which one or more of the amino acids specified in the chosen sequence is changed to a different amino acid, provided that no more than 15% of the amino acid residues in the amino acid sequence of said variant are changed;

c) a mature form of an amino acid sequence chosen from the group consisting of SEQ ID NO:2 and SEQ ID NO:4; and

d) a variant of a mature form of an amino acid sequence selected from the group consisting of SEQ ID NO:2 and SEQ ID NO:4, in which one or more of the amino acids specified in the chosen sequence is changed to a different amino acid, provided that no more than 15% of the amino acid residues in the amino acid sequence of the variant of said mature form are changed; and

e) a fragment of an amino acid sequence described in a) to d).

2. The polypeptide of claim 1, wherein said polypeptide is a fragment of a FCTRX polypeptide.

3. The polypeptide of claim 1, wherein said polypeptide is a naturally occurring allelic variant of SEQ ID NO:2 or SEQ ID NO:4.

4. The polypeptide of claim 3, wherein the variant is the translation of a single nucleotide polymorphism in a nucleic acid encoding said polypeptide.

5. The polypeptide of claim 1, wherein said polypeptide is a variant polypeptide comprising an amino acid sequence differing by one or more conservative substitutions from the amino acid sequence of SEQ ID NO:2 or SEQ ID NO:4.

6. An isolated nucleic acid molecule comprising a nucleic acid sequence encoding the polypeptide of claim 1.

7. An isolated nucleic acid molecule comprising a nucleic acid sequence encoding the polypeptide of claim 2.

8. The nucleic acid molecule of claim 6, wherein the nucleic acid molecule comprises the nucleotide sequence of a naturally occurring allelic nucleic acid variant of a nucleic acid encoding a polypeptide comprising SEQ ID NO:2 or SEQ ID NO:4.

9. The nucleic acid molecule of claim 6, wherein the nucleic acid molecule encodes a variant polypeptide, wherein the variant polypeptide has the polypeptide sequence of a naturally occurring polypeptide variant.

10. The nucleic acid molecule of claim 6, wherein the nucleic acid molecule comprises a single nucleotide polymorphism encoding said variant polypeptide.

11. The nucleic acid molecule of claim 6, wherein said nucleic acid molecule comprises a nucleotide sequence selected from the group consisting of

a) a nucleotide sequence selected from the group consisting of SEQ ID NOs:1 and 3;

b) a nucleotide sequence differ by one or more nucleotides from a reference nucleotide sequence selected from the group consisting of SEQ ID NO:1 and 3, provided that no more than 20% of the nucleotides differ from said reference nucleotide sequence;

c) a nucleic acid fragment of the sequence described in a);

d) a nucleic acid fragment of the sequence described in b); and

e) the complement of any of a) to d).

12. The nucleic acid of claim 11, wherein said nucleic acid encodes does not encode a full-length FCTRX polypeptide.

13. The nucleic acid molecule of claim 6, wherein said nucleic acid molecule hybridizes under stringent conditions to a nucleotide sequence chosen from the group consisting of SEQ ID NOs:1 and 3, or a complement of said nucleotide sequence.

14 A vector comprising the nucleic acid molecule of claim 6.

15. A cell comprising the vector of claim 14.

16. An antibody that binds immunospecifically to the polypeptide of claim 1.

17. The antibody of claim 16, wherein said antibody is a monoclonal antibody.

18. The antibody of claim 16, wherein said antibody is a polyclonal antibody.

19. The antibody of claim 16, wherein said antibody is a humanized antibody.

20. The antibody of claim 18, wherein the antibody is a human antibody.

21. A method for identifying a polypeptide of claim 1 in a sample, the method comprising:

(a) providing the sample;

(b) contacting the sample with an antibody that binds immunospecifically to the polypeptide of claim 1; and

(c) determining the presence or amount of antibody bound to said polypeptide, thereby determining the presence or amount of polypeptide in said sample.

22. A method for determining the presence or amount of a nucleic acid molecule in a sample, the method comprising:

(a) providing the sample;

(b) contacting the sample with a probe that binds to the nucleic acid molecule of claim 6; and

(c) determining the presence or amount of the probe bound to said nucleic acid molecule,

thereby determining the presence or amount of the nucleic acid molecule in said sample.

23. A method for identifying an agent that binds to a polypeptide of claim 1, the method comprising:

(a) contacting said polypeptide with a candidate substance; and

(b) determining whether said candidate substance binds to said polypeptide;

wherein binding of said candidate substance to said polypeptide indicates that said substance is an agent that binds to said polypeptide.

24. The method of claim 23 wherein the candidate substance has a molecular weight not more than about 1500 Da.

25. A method for modulating an activity of the polypeptide of claim 1, the method comprising contacting the polypeptide with a compound that binds to the polypeptide in an amount sufficient to modulate the activity of said polypeptide.

26. A method for identifying a therapeutic agent, the method comprising

(a) providing a cell expressing polypeptide of claim 1;

(b) contacting the cell with a test agent; and

(c) determining whether the substance modulates an activity selected from the group consisting of DNA synthesis, protein translation, cell growth, and cell division;

wherein an alteration of said activity in the presence of the substance indicates said agent is a therapeutic agent.

27. The method of claim 26, wherein the candidate substance has a molecular weight not more than about 1500 Da.

28. The method of claim 27, wherein the property or function comprises cell growth or cell proliferation.

29. A therapeutic agent identified according to the method of claim 26.

30. The therapeutic agent of claim 29, wherein the agent has a molecular weight not more than about 1500 Da.

31. A therapeutic agent according to the method of claim 26.

32. The therapeutic agent of claim 31, wherein the agent has a molecular weight not more than about 1500 Da.

33. A method of treating or preventing a disorder associated with a polypeptide described in claim 1 in a subject, said method comprising administering to said subject in need thereof a polypeptide of claim 1 in an amount and for a duration sufficient to treat or prevent said protein-associated disorder in said subject, wherein the subject is thought to be prone to or to be suffering from the disorder.

34. The method of claim 34, wherein said subject is a human.

35. A method of treating or preventing a disorder associated with aberrant expression, aberrant processing, or aberrant physiological interactions of a protein described in claim 1, wherein the disorder is characterized by insufficient or ineffective growth of a cell or a tissue, said method comprising administering to a subject a nucleic

acid of claim 6 in an amount and for a duration sufficient to treat or prevent said disorder in said subject, wherein the subject is thought to be prone to or to be suffering from the disorder.

36. The method of claim 35, wherein said subject is a human.

37. A method of treating or preventing a disorder associated with aberrant expression, aberrant processing, or aberrant physiological interactions of a polypeptide of claim 1, wherein the disorder is characterized by hyperplasia or neoplasia of a cell or a tissue, said method comprising administering to a subject a Therapeutic in an amount sufficient to treat or prevent said disorder in said subject, wherein the subject is thought to be prone to or to be suffering from the disorder.

38. The method described in claim 38 wherein the Therapeutic is an anti-FCTRX antibody.

39. The method of claim 38, wherein the subject is a human.

40. A pharmaceutical composition comprising a polypeptide of claim 1 and a pharmaceutically acceptable carrier.

41. A pharmaceutical composition comprising a nucleic acid molecule of claim 6 and a pharmaceutically acceptable carrier.

42. A pharmaceutical composition comprising an antibody of claim 18 and a pharmaceutically acceptable carrier.

43. A pharmaceutical composition comprising a therapeutic agent of claim 29 and a pharmaceutically acceptable carrier.

44. A pharmaceutical composition comprising a therapeutic agent of claim 31 and a pharmaceutically acceptable carrier.

45. A kit comprising in one or more containers a pharmaceutical composition of claim 41.

46. A kit comprising in one or more containers a pharmaceutical composition of claim 42.

47. A kit comprising in one or more containers, a pharmaceutical composition of claim 43.

48. A method for screening for a modulator of latency or predisposition to a disorder associated with aberrant expression, aberrant processing, or aberrant physiological interactions of a polypeptide described in claim 1, said method comprising:

a) providing a test animal at increased risk for the disorder and wherein said test animal recombinantly expresses the polypeptide of claim 1;

b) administering a test compound to the test animal;

c) measuring an activity of said polypeptide in said test animal after administering the compound of step (a);and

d) comparing the activity of said protein in said test animal with the activity of said polypeptide in a control animal not administered said polypeptide;

wherein a change in the activity of said polypeptide in said test animal relative to said control animal indicates the test compound is a modulator of latency of or predisposition to the disorder.

49. The method of claim 48, wherein said test animal is a recombinant test animal that expresses a test protein transgene or expresses said transgene under the control of a promoter at an increased level relative to a wild-type test animal, and wherein said promoter is not the native gene promoter of said transgene.

50. A modulator of latency of or predisposition to a disorder associated with aberrant expression, aberrant processing, or aberrant physiological interactions of a polypeptide described in claim 1.

51. A method for determining the presence of or predisposition to a disease associated with altered levels of a polypeptide described in claim 1 in a first mammalian subject, the method comprising:

a) measuring the level of expression of the polypeptide in a sample from the first mammalian subject; and

b) comparing the amount of said polypeptide in the sample of step (a) to the amount of the polypeptide present in a control sample from a second mammalian subject known not to have, or not to be predisposed to, said disease,

wherein an alteration in the expression level of the polypeptide in the first subject as compared to the control sample indicates the presence of or predisposition to said disease.

52. A method for determining the presence of or predisposition to a disease associated with altered levels of a nucleic acid molecule described in claim 6 in a first mammalian subject, the method comprising:

a) measuring the amount of the nucleic acid in a sample from the first mammalian subject; and

b) comparing the amount of said nucleic acid in the sample of step (a) to the amount of the nucleic acid present in a control sample from a second mammalian subject known not to have or not be predisposed to, the disease;

wherein an alteration in the level of the nucleic acid in the first subject as compared to the control sample indicates the presence of or predisposition to the disease.

53. A method of treating a pathological state in a mammal, wherein the pathology is related to aberrant expression, aberrant processing, or aberrant physiological interactions of a polypeptide described in claim 1, the method comprising administering to the mammal a polypeptide in an amount that is sufficient to alleviate the pathological

state, wherein the polypeptide is a polypeptide having an amino acid sequence at least 95% identical to a polypeptide comprising an amino acid sequence of at least one of SEQ ID NOs:2 and 4, or a biologically active fragment thereof.

54. A method of treating a pathological state in a mammal, wherein the pathology is related to aberrant expression, aberrant processing, or aberrant physiological interactions of a FCTRX polypeptide, the method comprising administering to the mammal an antibody of claim 18 in an amount and for a duration sufficient to alleviate the pathological state.

55. A method of promoting growth of cells in a subject comprising administering to the subject a polypeptide described in claim 1 in an amount and for a duration that are effective to promote cell growth.

56. The method described in claim 55, wherein the polypeptide is the fragment described in claim 2.

57. The method of claim 55, wherein the subject is a human.

58. The method of claim 55, wherein the cells whose growth is to be promoted are chosen from the group consisting of cells in the vicinity of a wound, cells in the vascular system, cells involved in hematopoiesis, cells involved in erythropoiesis, cells in the lining of the gastrointestinal tract, and cells in hair follicles.

59. A method of inhibiting growth of cells in a subject, wherein the growth is related to expression of a polypeptide described in claim 1, comprising administering to the subject a composition that inhibits growth of the cells.

60. The method of claim 59, wherein the composition inhibits the cleavage of a FCTRX polypeptide in said subject.

61. The method of claim 60, wherein the composition comprises an anti-FCTRX antibody.

62. The method of claim 61, wherein the subject is a human.

63. The method of claim 62, wherein the cells whose growth is to be inhibited are chosen from the group consisting of transformed cells, hyperplastic cells, tumor cells, and neoplastic cells.

64. A method of producing a FCTRX polypeptide by culturing a cell that comprises a nucleic acid the FCTRX polypeptide under conditions allowing for expression of the polypeptide.

65. The method described in claim 65 further wherein the FCTRX polypeptide is recovered.